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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,805	11/20/2003	Lorenzo Parrini	16615	8662
50659	7590	03/23/2006	EXAMINER	
BUTZEL LONG DOCKETING DEPARTMENT 100 BLOOMFIELD HILLS PARKWAY SUITE 200 BLOOMFIELD HILLS, MI 48304			KRUER, STEFAN	
			ART UNIT	PAPER NUMBER
			3654	

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/717,805

Applicant(s)

PARRINI, LORENZO

Examiner

Stefan Krueer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 - 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Angelis (5,566,786) in view of Oleson, et al (4,956,039).

In Claims 1 and 7, De Angelis discloses an elongated load-bearing support device (1) with load bearing strands (4), each having a plurality of fibers (5) of a base material in a first phase (aramid fibers (Col. 2, Line 38)) and the strands being surrounded by a sheath (7). The reinforcing material of De Angelis is of a second phase, yet it is externally applied to the base material as "... an impregnating medium, for example polyurethane solution, for the protection of the fibers 5" (Col.3, Line 57) whereby a second phase is introduced into a first phase and the bending fatigue strength of the strands is increased. De Angelis adds, "Expediently, the individual strands can also be protected by a braided sleeve of polyester fibers"(Col. 3, Line 67).

Oleson, however, discloses the application of a thermoplastic sleeve that "...is preferably filled with reinforcement elements having a high modulus of elasticity..." (Col. 2, Line 60), as well as a core string comprising a thermoplastic material with filaments of "...preferably E-glass... S-glass... aramid or carbon...", the distribution of reinforcing material of one phase within a base material of another (second) phase is taught. Furthermore, since the objective of the Oleson reference was "...to provide a method or an apparatus for the economical manufacture of a cable-like synthetic composite body which satisfies the requirements of being able to bear relatively high tensile and compressive forces in every respect...", it would have been obvious to one of ordinary

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skill in the art to modify the base material of De Angelis with the teaching of Oleson, in order to gain the commercial and structural (performance) features of Oleson.

In Claim 2, De Angelis discloses a plurality of fibers (5) formed into a cable (4 and, in total, 1).

With respect to Claims 3 and 8, though De Angelis discloses a base material (5) of aramid fiber and a reinforcing material comprising a polyurethane solution with which “each individual strand 4 is treated...” (Col. 3, Line 56), thereby increasing the modulus of elasticity of each strand in a radial direction (whereby each strand comprises fibers) he is silent regarding the treatment of the individual fibers. Olesen, however, teaches a thermoplastic material that can be “...polypropylene filled with 20% E-glass staple fibers... (Col. 7, Line 7) whereby the glass fibers significantly increase the modulus of elasticity of each of the fibers in the longitudinal direction. Therefore, it would have been obvious to one of ordinary skill in the art to modify the invention of De Angelis with the teaching of Olesen, in order to provide a base material of superior tensile strength.

Regarding Claims 4 and 9, Olesen discloses a reinforcing material as “... staple fibers (23) of a high modulus of elasticity...” which is used to fill the base material (13) of thermoplastic material.

In Claims 5 and 10, as noted above, Olesen discloses a reinforcing material as “... staple fibers...”, wherein staple fibers are understood to be short fibers.

Regarding Claim 6, De Angelis discloses that in “...another form or embodiment ...each individual strand 4 is provided with a separate, annular closed casing...” (Col. 4, Line 63).

Regarding Claims 11 – 15, the devices of Claims 1 – 10 would necessarily have to be formed in order to function. It would have been obvious to perform all the method steps of claims 11-15 when producing the device of De Angelis as modified by Olesen above, in a usual and expected fashion, in as much as the method claims recite no limiting steps beyond producing each of the components.

In Claim 11, De Angelis, again, discloses an elongated load-bearing support device (1) with fibers (5) from a base material in a first phase (aramid fibers) and a reinforcing material in a second phase (“... an impregnating medium, ...polyurethane solution), with the load-bearing strands (4) thereof being surrounded by a sheath (7).

In Claim 12, De Angelis discloses a base material selected from aramid (5) and Oleson discloses a base material selected from a thermoplastic (preferably, but not limited to, polyethylene).

In Claim 13, De Angelis discloses a reinforcing means by impregnation with a polyurethane solution to increase the bending fatigue strength of the base material, whereas Oleson teaches a reinforcing material as “... staple fibers (23) of a high modulus of elasticity...” which is used to fill the base material (13).

In Claim 14, Oleson teaches a core string having a thermoplastic material with filaments of “...preferably E-glass... S-glass... aramid or carbon...” as well as the selection of “...staple fibers of glass, aramid or carbon...” as “reinforcing elements having a high modulus of elasticity”.

In Claim 15, Olesen teaches both the incorporation of “reinforcement elements... in particular staple fibers...” (Col. 2, Line 61) and that the staple fibers be of “... glass, aramid or carbon...” (Col. 4, Line 5), whereby staple fibers are understood to be short fibers.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tatsuyoshi (JP 02-133631)), McCullough (6,544,645) and LaNieve et al (6,162,538) are cited for a composite fiber of nylon material with reinforcing elements comprising metal filaments, a fiber reinforced aluminum matrix composite wire, wherein the aluminum matrix comprises a single phase aluminum state, and a fiber-forming polymer having a filler material of metallic or non-metallic particulates, respectively.

Response to Arguments

Applicant's arguments filed 6 Feb. 2006 have been fully considered but they are not persuasive.

The load-bearing fibers of De Angelis, comprising a first phase, are treated by "...an impregnating medium..." comprising a second phase, whereby the bending fatigue strength of the combined fibers is increased. Furthermore, through impregnation, the fibers of his invention are saturated or infused with his reinforcing material, polyurethane, thereby introducing the reinforcing material into the fibers.

Oleson furthers this through the introduction of distinct "reinforcing elements having a high modulus of elasticity" as being "...staple fibers of glass, aramid or carbon..." in his second thermoplastic for the sleeve layer of his core string, the latter consisting of endless filaments of "...preferably E-glass... S-glass... aramid or carbon..." The term "reinforcing" and selection of elements having "a high modulus of elasticity" address the intended improvement of the mechanical properties.

In that his core string is impregnated with a thermoplastic material, which is liquefied when heated during the process of manufacturing his device, and the two outer sleeves are thermoplastic as well, with the sleeve adjacent to the core string having said "reinforcing (staple) fibers", an "...intimate bond of the first thermoplastic plastic to the second thermoplastic plastic is generated" by a heating and extrusion process.

The intimate bonding is furthered by the familial materials of the sleeve and impregnating medium of the core string, thereby obviating the use of solvents to promote bonding, as well as the displacement of the reinforcing elements towards the core string, having similar if not identical reinforcing elements, during the aforementioned heating and extrusion process, as acknowledged by the applicant of the instant invention. This displacement enables the "...tensile and pressure forces acting on the sleeve to be (sic) transmitted to the core string..." which is in keeping with the inventor's intent of creating a "... composite body behaving (sic) approximately as an iron rod..." – a uniform component fiber.

In that the fiber of the instant invention is a sheathed, dual-phase, composite entity, offering enhanced modulus of elasticity in either or both the radial and the longitudinal direction, and that the device of De Angelis as furthered by Oleson provides a sheathed, dual-phase composite fiber offering enhanced modulus of elasticity in both the radial and longitudinal directions, the instant claims are not patentable over the references as applied above.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Kruer whose telephone number is 571.272.5913. The examiner can normally be reached on M-F, 09:00 - 18:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki can be reached on 571.272.6951. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866.217.9197 (toll-free).

SHK

2 March 2006



KATHY MATECKI
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